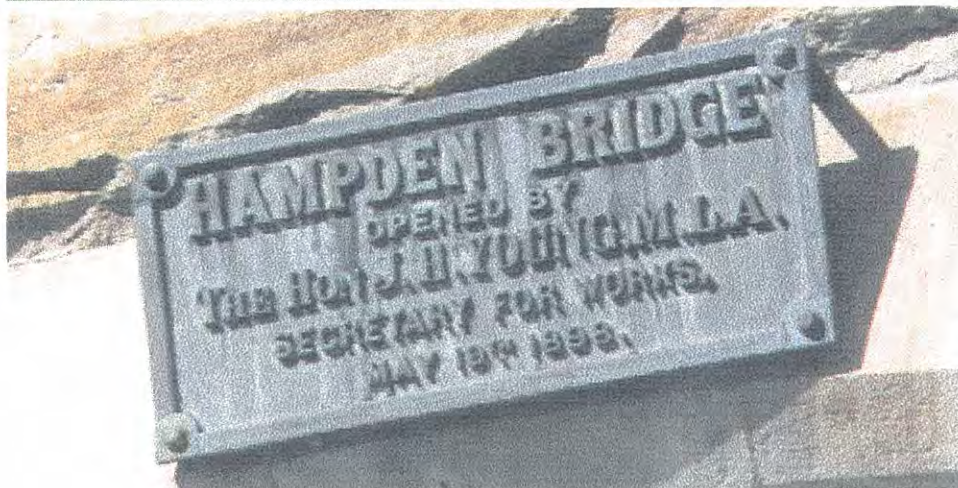
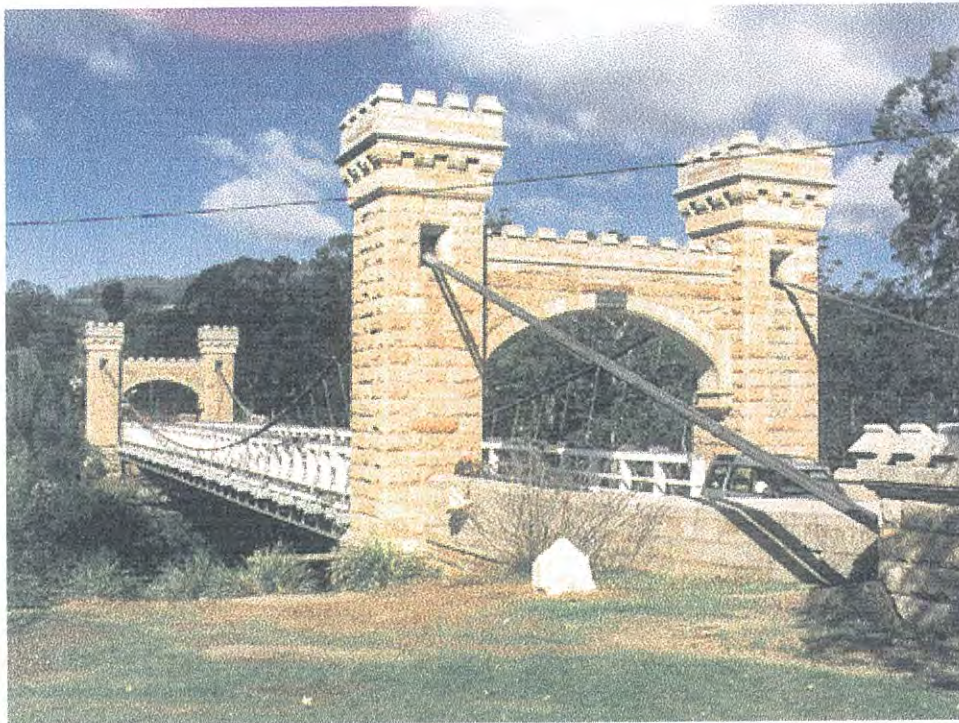


The Hampden Bridge

OVER THE KANGAROO RIVER,
KANGAROO VALLEY, N S W.

NOMINATION AS AN

Historic Engineering Marker



Prepared for
The Engineering Heritage Committee, Sydney Division, I E Aust
by Donald J Fraser, March 1999

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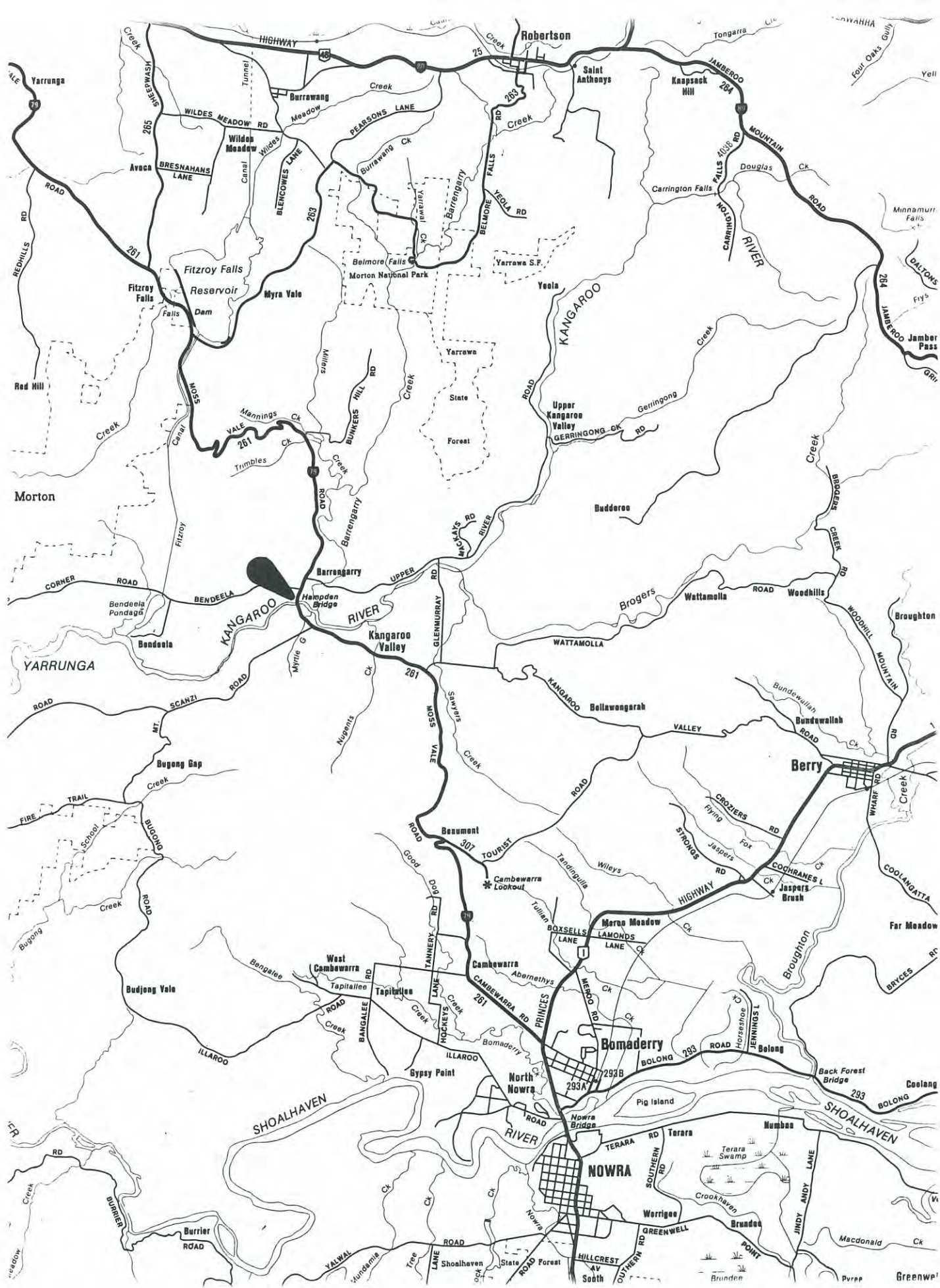
APPROVAL FROM R T A

DRAFT PLAQUE WORDS

THE HAMPDEN BRIDGE STORY
by Alan Clark

THE BRIDGE IN 1998

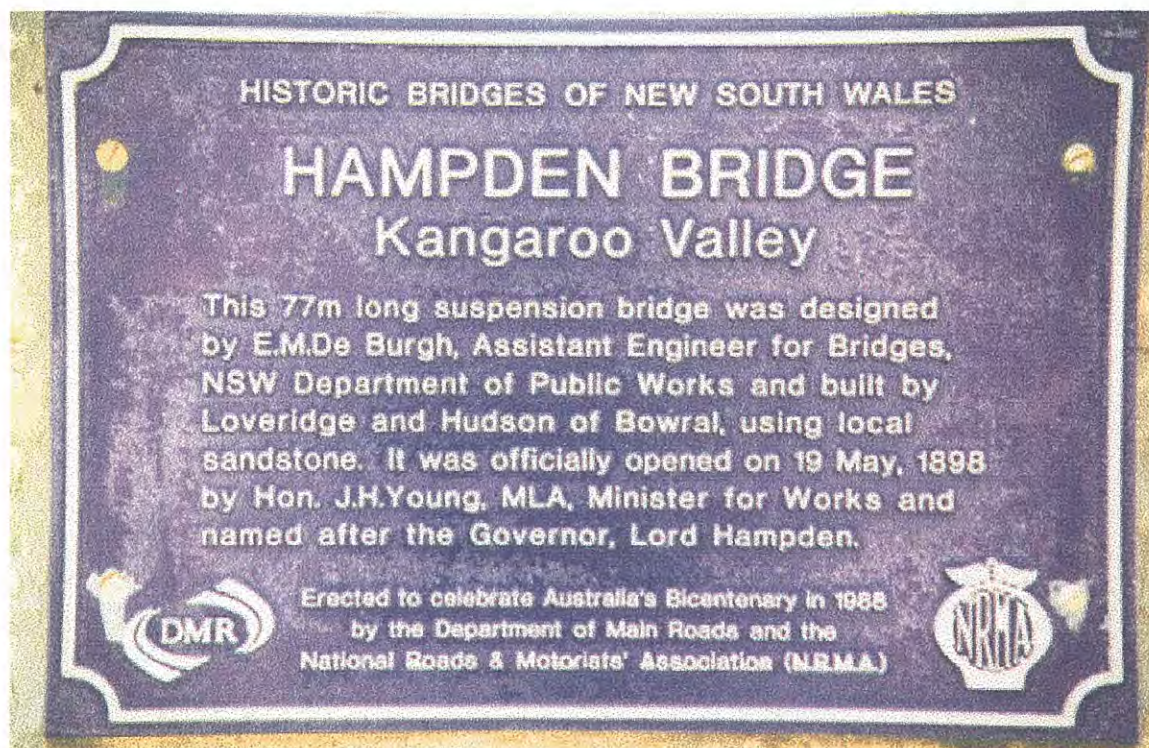
CENTENARY CELEBRATIONS 24 May 1998



STATEMENT OF SIGNIFICANCE

The historic bridge over the Kangaroo River, Kangaroo Valley, N S W, is a 101-year old suspension bridge which was a remarkable achievement for colonial New South Wales, but was not on the same scale as the contemporary suspension bridges in the U S A.

- it is the only surviving suspension road bridge in NSW from the colonial period
- it was designed by the eminent Public Works Department engineer, E. M. DeBurgh
- it is on the Register of the National Estate
- and has been Classified by the National Trust (NSW)
- its historic status was recognised in 1988 with a Bicentennial plaque, see below
- it is greatly revered by the local community who organised a well attended centenary celebration on 24 May 1998
- it is one of the most attractive and well known bridges in NSW
- the bridge and its stone towers were constructed by one of the colony's principal contractors and stonemasons, Loveridge and Hudson
- it has high social significance due to its continuous service in carrying all classes of traffic between Nowra and the South Coast to the Southern Highlands and to the Hume Highway
- it satisfies the principal criteria of the Heritage Office NSW, historical, aesthetic, technical, social and rarity.



Commemorative Plaque Nomination Form

To:
Commemorative Plaque Sub-Committee
The Institution of Engineers, Australia
Engineering House
11 National Circuit
BARTON ACT 2600

Date March 1999
From Engineering Heritage
Committee

Sydney Division, I E Aust

.....
Nominating Body

The following work is nominated for a :-

- ~~National Engineering Landmark~~
- Historic Engineering Marker
(delete as appropriate)

Name of work The Hampden (suspension) Bridge

Location Kangaroo River, Kangaroo Valley, N S W

.....
Owner Roads and Traffic Authority of NSW

.....
Owner's response Plaquing approved see letter attached

.....
Access to site A public road and bridge

Future care and maintenance of the work Regularly maintained by the RTA

.....
Name of sponsor

For a NEL, is an information plaque required?

.....
Chairperson of nominating committee


Chairperson of Division Heritage Committee

ADDITIONAL SUPPORTING INFORMATION

Name of work The Hampden (suspension) Bridge

Year of construction or manufacture.... 1899

Period of operation..... 101 years and still in service

Physical condition..... Very good

Engineering Heritage Significance :-

Technological, scientific value..... Sophisticated structural engineering for its time

Historical value..... The second major suspension road bridge in NSW

Social value..... In service for 101 years on a major link road

Landscape or township value..... Highly attractive with its stone towers

Rarity..... Only surviving suspension bridge from NSW colonial period

Representativeness No other examples

Contribution to nation or region Important link from South Coast to Southern Tablelands

Contribution to engineering Shows increasing sophistication of colonial engineering

Persons associated with the work..... E. M. DeBurgh and, Loveridge and Hudson

Integrity..... Its original fabric is intact

Authenticity..... It is the original structure

Comparable works (a) in Australia None have survived

(b) overseas Not relevant

Statement of significance, its location in the supporting documentation
..... see table of contents

Citation (70 words is optimum) similar to the NRMA plaque, see later

.....

.....

.....

.....

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.....

.....

.....

.....

Attachments to submission (if any) Copy of Alan Clark's *The Hampden Bridge Story, Kangaroo Valley, 1998*

Proposed location of plaque (if not at site)..... RTA prefers not attached to the stone towers so it likely to be nearby on a rock or on the western stone parapet as is the eastern NRMA plaque.

Chief Executive
96M3417 Pt 4

08 JAN 1999



Better Roads. Safer Roads.
Saving Lives.

Mr Don Fraser
Secretary
Engineering Heritage Committee
The Institution of Engineers, Australia
Sydney Division
C/- PO Box 2044
ROSE BAY NORTH NSW 2030

260 Elizabeth Street
Surry Hills NSW 2010
Telephone (02) 9218 6888
PO Box K198
Haymarket NSW 1238
DX 13 Sydney

Dear Don

I refer to your request of 24 December 1998 to attach a plaque, similar to the one placed at the old rail and road bridges in Gundagai last November, to the Hampden Bridge in Kangaroo Valley in recognition of the historic significance of this structure.

I have noted with interest the ceremony report of the two historic bridges at Gundagai and am pleased to give in principle approval to similar recognition being given to this over 100 years old suspension bridge, which continues to provide faithful service to this day.

As you are aware, Minister Scully played a leading role in the rededication ceremony held as part of the bridge's centenary celebrations last May and a plaque to mark this event was attached to a rock adjacent to the Moss Vale end of the bridge. I suggest that your proposed plaque be likewise located, rather than to a bridge tower, so that safety for pedestrians stopping to read these historic marker plaques is not compromised.

The Regional Manager at Wollongong, Neil Lamb (tel 02 42 212401), would be only too happy to assist you in relation to this matter and I ask that you work out suitable arrangements direct with him.

I wish the Committee well in its continuing efforts to highlight significant examples of our engineering heritage.

Yours sincerely

R D Christie
Chief Executive

DRAFT PLAQUE WORDS



HISTORIC ENGINEERING
MARKER

**THE HAMPDEN BRIDGE
KANGAROO VALLEY, NSW**

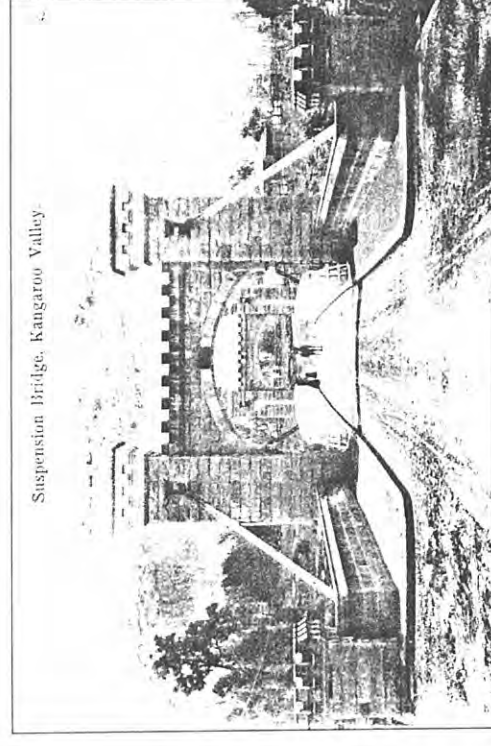
THIS BRIDGE, SPANNING THE WIDTH OF THE KANGAROO RIVER GORGE, IS THE ONLY SURVIVING SUSPENSION ROAD BRIDGE FROM THE COLONIAL PERIOD OF NEW SOUTH WALES AND WAS AN OUTSTANDING ENGINEERING ACHIEVEMENT FOR ITS TIME. DESIGNED BY THE EMINENT ENGINEER E M DEBURGH OF THE PUBLIC WORKS DEPARTMENT AND BUILT BY LOVERIDGE AND HUDSON, IT WAS OPENED ON 19 MAY 1898 REPLACING THE 2-SPAN TIMBER TRUSS BRIDGE OF 1879. IT MAINTAINS THE VITAL LINK FROM THE SOUTH COAST TO THE SOUTHERN HIGHLANDS. (81 words)

DEDICATED BY
THE INSTITUTION OF ENGINEERS, AUSTRALIA
AND THE KANGAROO VALLEY HISTORICAL SOCIETY INC. 1999

NB The RTA already has its name on the NRMA plaque.

THE HAMPDEN BRIDGE STORY

KANGAROO VALLEY



by Alan Clark

THE HAMPDEN BRIDGE STORY

KANGAROO VALLEY

by Alan Clark

Published in 1998 by
Kangaroo Valley Historical Society Inc.

ISBN 0 9596067 2 6

HAMPDEN BRIDGE CELEBRATES 100 YEARS

A century is a long time in anyone's books, particularly for a bridge which became a solid lifeline for one of the most picturesque and historic communities in New South Wales.

Hampden Bridge is a testament not only to the strength of bricks and mortar, but also of a community which has survived and thrived over the past 100 years, through this connection across the Kangaroo River.

Congratulations must go to the coordinators of the centenary celebrations, for giving us this wonderful opportunity to share in this remarkable milestone. I am delighted and honoured to be able to participate with the residents of Kangaroo Valley in this historic occasion.

Hampden Bridge was named after NSW Governor Lord Hampden, who had commented during one of his visits to the area that he had never seen "a more beautiful patch of country than that between Kangaroo Valley and Coolangatta", something many residents and visitors agree with.

The Hampden Bridge was a major project for the community and surrounding districts, designed by Sydney architects in conjunction with a Bowral engineer, the construction stone was quarried near the site and in the Highlands and up to 40 men were employed at a time.

In 1988 Hampden Bridge was declared one of the 50 most historic bridges in the State by the Department of Main Roads and the NRMA.

Hampden Bridge has had a colourful past and I am honoured to have been invited to participate in the centenary celebrations of this wonderful structure.

As a resident of Gilmore, I cross Hampden Bridge at least every second day and I am always impressed by not only the aesthetics of the structure, but also how it has stood the test of time for the local community. The strength of character and determination of the contractors, builders, those who cut the raw material and local residents, is evident in the fact that we are today celebrating 100 years of Hampden Bridge. I look forward to crossing Hampden Bridge for many decades to come.



Joanna Gash, MP (Mrs)
Federal Member for Gilmore

Introduction

Kangaroo Valley is one of a number of outlying parts of the Shoalhaven City Council area which boasts a proud history, and for the past century, the Hampden Bridge has been its most significant feature.

In modern times, motorists who must pause before crossing it, have the chance to reflect on the large project which started in 1896 and came to fruition with the official opening of the Hampden Bridge some two years later.

The structure came into use in the days of the horse and cart, but it had the strength to carry on into the era of motor vehicles. There is considerable difference in weight from the buggy which first crossed the bridge in 1898, to the heavy motor transports which use it today.

Australia Post recognised the symbol of Kangaroo Valley when on 4 April 1984 it introduced a pictorial postmarker featuring the Hampden Bridge, and so the mail which left the village served to promote it.

The closeknit community was well aware that the bridge's centenary was approaching, and set out to celebrate the event in style. As one of the activities for the centenary, it was resolved to tell the story of the bridge, and so the idea for this publication was born.

While research has centred on the period of its construction and opening, there has also been an effort to include details of the key people involved, along with some events from earlier and later years relating to the bridge and its river crossing.

—Alan Clark.

1. The first bridge

When they wanted to travel across towards the Highlands, Kangaroo Valley's early settlers were hampered by having to ford the Kangaroo River, but a decision was finally made in the 1870s to construct a timber truss bridge across it. The contract was let for £3000 in February 1877 to the Braidwood company, Kelly & Walsh.

It did not prove to be an easy task, for the contractors encountered what were described as "many trying and unforeseen difficulties". After having been on the job for some time, authorities decided to alter the site of the bridge, so as to have shallower water to work in, and also in order to get rock foundations for the central pier. The situation was described by *The Telegraph, Nowra* as follows:

This necessitated considerable delay, as it was found that the rock could not be reached without the aid of a coffer-dam.

Operations were therefore suspended while hand-sawyers cut 12,000 feet of timber, and again after the dam was well advanced, a flood came and broke it down.

A trial of cylinders to effect the same purpose produced no better result and ultimately when it was decided to drive the central pier as aforementioned, the progress of the work went on unchecked and the structure does credit to Roads Department and the contractors.

Named the Kangaroo Valley Bridge, it was eventually opened on Thursday, 14 August 1879 by Thomas Garrett, MP, a newspaperman who had founded the *Illawarra Mercury* in 1855. Although he was then the Member for Camden, Garrett had previously been the Shoalhaven Member between 1864 and 1871. The ceremony involved him smashing a bottle of "fiz" on one of the central trusses, to the cheers of the 200 people present.

Following the opening, about 60 men adjourned to the Cosmopolitan Hall (on the eastern end of the Pioneer Hotel) for a banquet which was served by host Charles Robinson. Garrett again spoke, and other parliamentarians, John Roseby (Shoalhaven) and Captain Samuel Charles (Kiama) took the opportunity to tell of further projects being undertaken in the district. Proceedings had started at 4 p.m., and after some selections from the Shoalhaven Brass Band, ended at 7.30.

The newspaper report provided this description:

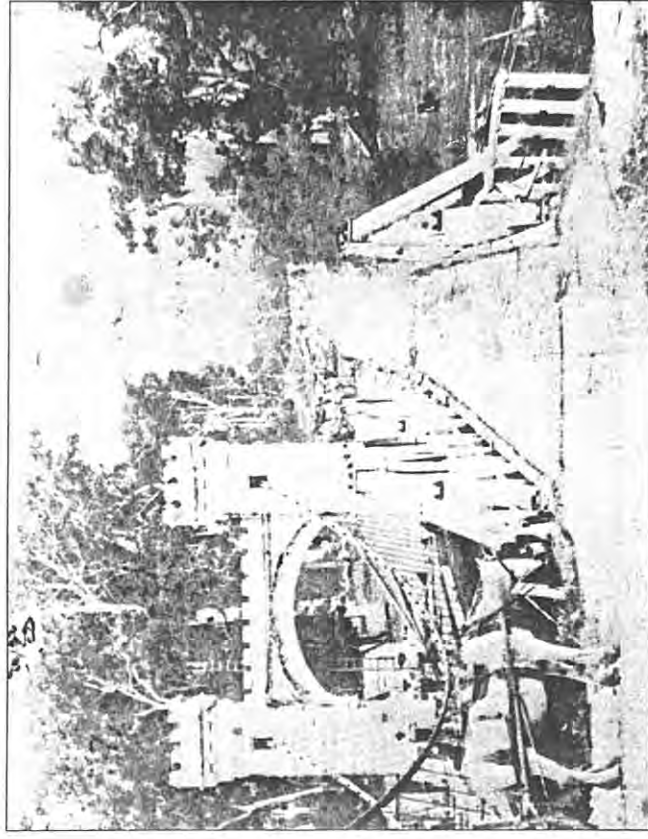
... an excellently finished wooden structure 245 feet long, made up of two principal spans of 100 feet each from centre to centre, one approach span of 45 feet, and has a clear roadway on deck of 14 feet.

The main girders are constructed of two plates each, 14 in. by 5, fished at joints with half-inch iron plates 3 feet by 1 foot, and the decking boards, which are of wollybut 5 in. by 4, are laid longitudinally, and tarred over. The superstructure is 62 feet above the summer level of the river, and rests on three piers of eight piles, 14 in. by 14, grouped in fours.

The piers are queen trussed, and stayed up and down stream by piles, in addition to the outer pair being lawised in the solid rock.

The central one is driven into a bottom that resisted the introduction of the drill at a greater speed than a quarter of an inch per blow from a ton monkey, with a drop of twenty-four feet.

The conclusion was that it was "a thoroughly permanent structure", but before too long, its inadequacies started to be revealed. In 1893 wire ropes and two large girders were placed under the bridge to give it added strength, and while the new one was under construction, £20 worth of repairs were made on it. Some of the timber had deteriorated to be in a very poor state when the bridge was eventually taken from service.



The 1879 wooden bridge, as it was while the Hampden Bridge was being constructed.

2. New bridge announced

Public Works Department engineer, Ernest De Burgh visited the site on 21 April 1895 to take levels, prior to drawing up plans for the new bridge. With the start to work imminent, *The Kangaroo Valley Times* in April 1896 published an article headed, "A Magnificent Bridge — The New Structure Over Kangaroo River" which was reprinted in *The Shoalhaven Telegraph*. It was announced that the new suspension bridge would be on the upstream side of the current structure, and contractors Loveridge & Hudson were reportedly ready to "push on vigorously".

The estimated time for work was 18 months, but with the large number of men at work in the stone quarry, it was expected the structure would take on a practical shape before long. So that the locals understood what the bridge would be like, the article went into great detail on the design, and likened the towers to those at the Tower of London. It included this description:

The new bridge is to be constructed on the suspension principle, the spans being supports of ends of cables being about 253ft. To carry the cables there will be erected on each side of the river a pair of towers of sandstone masonry, procured from the immediate vicinity of the bridge.

These towers will be about 42ft. high, built on concrete blocks, resting on the present sandstone formation, the masonry to towers being 8ft. square. Each pair of towers will be connected by a wall containing an arched doorway 18ft. high, and as the top sides of the centre walls and heads of towers will be finished with battlement tops, the whole will present the appearance of a structure similar to the famous "Traitor's" gate of the Tower of London or some other gate in one of the olden-time castles.

In the towers about 30ft. above the ground are the blocks which carry the castles, which in turn are composed of steel wire ropes. Each cable consists of seven wire ropes, each 4 1/2 in. in circumference, laid side by side, passing over the bearings in the towers, and fixed down at the anchorages 80ft. behind the towers and 25ft. below ground.

The curvature in the cables between the towers and centre of span will be about 20ft. Miniature towers, or pilasters, will be erected at end of bridge where the cables pass into the anchorage chambers.

The space between these pilasters and the main towers will be contained by masonry walls built on a concrete foundation, between which walls earthenwork filling will be carried up to deck level, a parapet of the usual height being left above deck level.

The superstructure of the bridge, which is hung on to the cables by 78 suspension bolts, consists of timber; two stiffening trusses are on each side

running the total length of the bridge, each being 7ft. deep, built on the lattice principle.

Attached to the suspension bolts are beams of timber of section 14in., by 10in., which run transversely, carrying the abovementioned trusses as well as the seven longitudinal guiders, the latter running the entire length of the bridge. On top of these longitudinals will be placed the deck, also of timber.

In order to assure stiffness as well as strength, the deck will be composed of two layers of planking, each 2 1/2 in. thick, both laid diagonally, and at right angles to each other, the width of carriage way between the kerbings being 18ft. The deck will be about 60ft. above water in river, or about the same level as the present one.

The actual length of the bridge will be about 400ft. from pilaster to pilaster, and as the approaches measure about 528ft., the total length of bridge and approaches will be 928ft.

The bridge builders . . .

The Hampden Bridge was constructed by Loveridge & Hudson, a company formed by Thomas Loveridge (1858-1927) and Herbert Hudson (1862-1928) when they were young men of 24 and 20 years, respectively.

Both came from families involved in the construction industry, and had been apprenticed to Loveridge's father, Aaron who had specialised in masonry and worked on many projects with Hudson's grandfather, William Henry Hudson whose expertise was in the field of carpentry and woodwork. Herbert Hudson married Loveridge's sister, Amy in 1888, and so they became brothers-in-law as well as partners.

Loveridge & Hudson had substantially rebuilt Customs House at Circular Quay in the late 1880s, and were involved in many other significant projects in Sydney. They had recently completed the Equitable Life Assurance building in George Street when they started work at Kangaroo Valley in 1896.

Thomas Loveridge was living in Bowral by 1890, primarily to work the trachyte quarry on Mt. Gibraltar which in that period employed 150 men.

He supervised construction of the Hampden Bridge, often driving a sulky over Barrengarry Mountain on Monday mornings, and while on the job, he stayed during the week in one of the local hotels. The company was taken over by Blue Metal Industries Ltd. in the 1950s and later by Boral Ltd., but to this day it trades under the Loveridge & Hudson name.

The task was still to be completed, for she then took a trowel, and spent 15 minutes helping mix the cement which was used to fill the joints. When this had been accomplished, the traditional question was asked whether the stone was well and truly laid, and according to *The Times*, it was "responded to in the affirmative very emphatically".

Lauder then escorted the party over parts of the construction, pointing out the progress which had been made. At that stage some 400 tons of masonry and cement had been placed in the towers on the Nowra side of the river, this being about half the total for the complete pier. The quality of the contractors' workmanship was praised, and plans for the remaining work were shown. Length of the arch was given as 23 feet, and its height was 6-ft. 6-in. During the inspection, one "authority" made a prophetic remark that the bridge would "last until the Millennium".

That evening, the bridge workers gathered at the Commercial Hotel to mark the event, with John Lauder in the chair. Several toasts were proposed, including one to the contractors, and another to Miss Comer, the "fair keystone setter". Singing and recitations contributed to the entertainment, and it was 11 o'clock when the party broke up.

Florence Comer . . .

The first keystone of the Hampden Bridge was laid in 1896 by Florence Comer, identified in press reports as a "sister to Mrs Diggins".

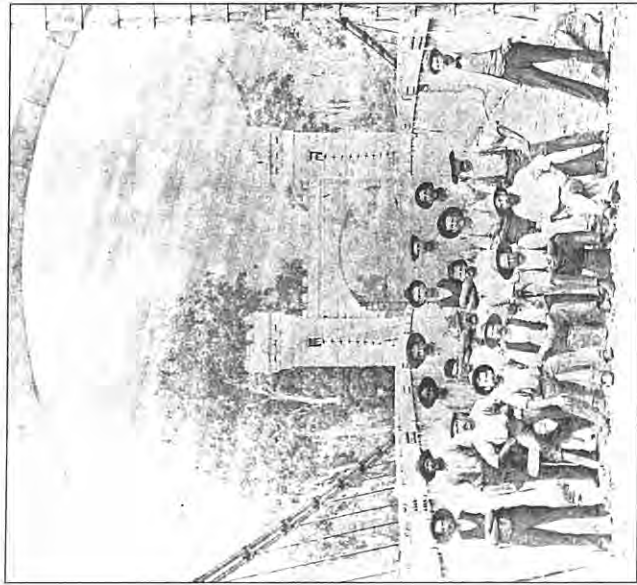
Florence was born in 1872, the eldest daughter of James Erdrop Comer (pronounced Coomer), and his wife Emily. James held the licence for a hotel in Berrima, and according to family papers, he also had a hotel at Kangaroo Valley "in the early days".

Fanny Louisa Diggins (the sister of Florence Comer), who was licensee of the Commercial Hotel, Kangaroo Valley during the construction of the bridge, had previously conducted the town's Pioneer Hotel.

It is not known how Florence was chosen for the honour of laying the keystone, but she carried out the duties with aplomb.

She was married at Bowral in 1897 to Neil McKinnon, and went to live at Narrandera where she died in 1899 when her first baby was stillborn.

Note: After being partially destroyed by fire, the Commercial Hotel was rebuilt and became the Friendly Inn in 1933.



Construction workers proudly pose on the partly-built bridge.

The first milestone in the construction occurred on Saturday, 30 May 1896 when the keystone to the Nowra end pier was laid by Florence Comer. The ceremony was arranged by the Works Department superintendent, J. Rorison who invited a few district residents to be present.

They were welcomed by Loveridge & Hudson's representative, foreman John Lauder. Born at Lauder, Scotland in 1853, he had trained as a stonemason before he migrated to Australia in 1879, with his wife Margaret and the first three of their 10 children. During a lifetime in the building trade, he worked on several major projects in Sydney, including St. Mary's Cathedral.

Masons gave the last finishing touches to the stone, estimated to be a ton in weight, before it was swung into position, to take its place among the other 14 which made up the archway. With some trepidation, Florence Comer climbed the ladder to perform her duty, but the stone was lowered into place, guided by the cornermen, Finley, Kent, Lauder and Rorison.

3. Progress before setbacks

After an absence of three months, Assistant Engineer for Bridges, Ernest De Burgh made another visit to the site on 2 July 1896. He was reported to be pleased with the progress being made, and returned to Sydney next day.

Later in that month, the first of the four thrust blocks was brought from the Highlands quarry to be put in place. Weighing six tons, it was loaded onto a waggon which was about half-way up Barrangarry Mountain when its kingbolt gave way, causing a 24-hour delay, but the contractors were relieved that the old bridge was able to stand the weight of this load.

From the other direction, the first of the cable wire ropes was being transported over Cambewarra Mountain from Nowra. By mid-July, eight were on the site, and the remaining 20 were being brought over at the rate of two per day. These cables, which had been made under contract in England, were 4½ inches in circumference, 500 feet long, and weighed nearly a ton.

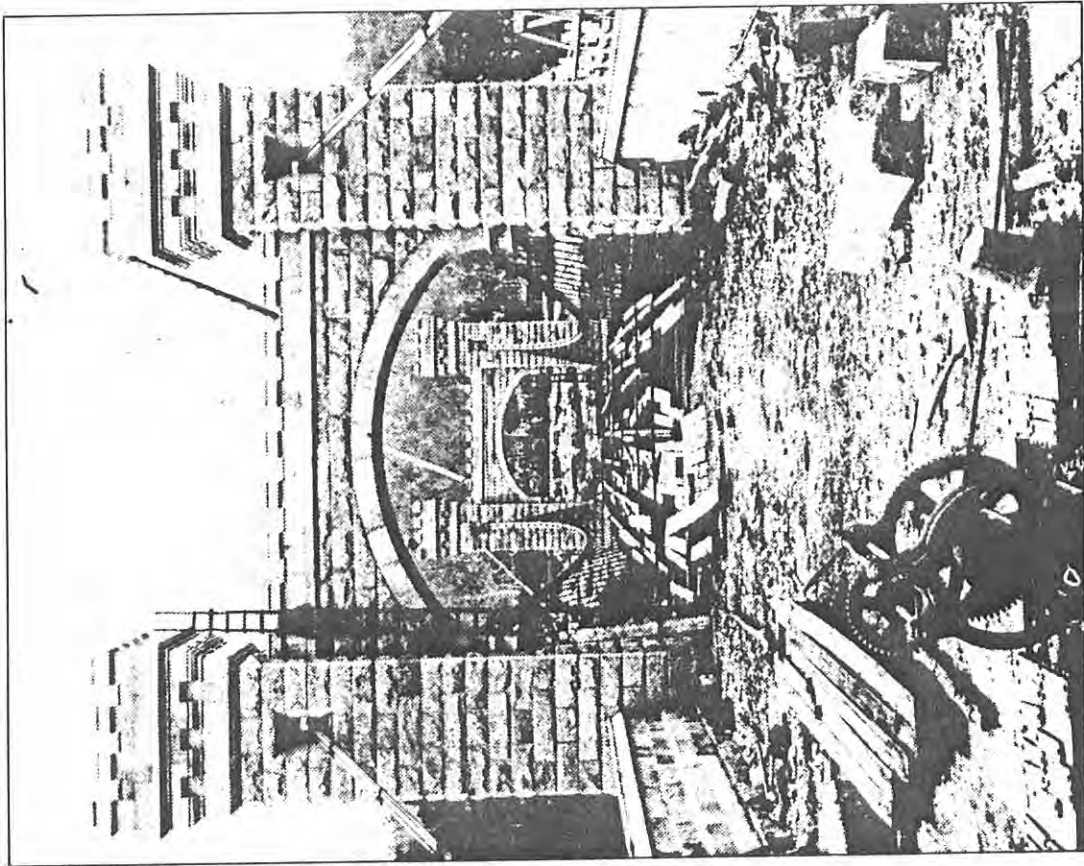
Some 40 men were then employed on the construction, and the "click, click" of the masons' hammers echoed around the village. The towers on the Nowra side had been completed, shafts in the anchorage chambers had been cemented to 12 feet, and the retaining walls were well under way. It was expected that all of the masonry work on that side, including walls and turrets, would be completed within a month.

While excavating sandstone near the site, one of the workmen discovered a fossil in the shape of gigantic moth which created plenty of interest and was taken out of the rock without being damaged. It was passed by Henry M. Osborne of Barrangarry to contractor Thomas Loveridge, who told the *Sydney Morning Herald* that he would forward it to Sydney so that it could be exhibited.

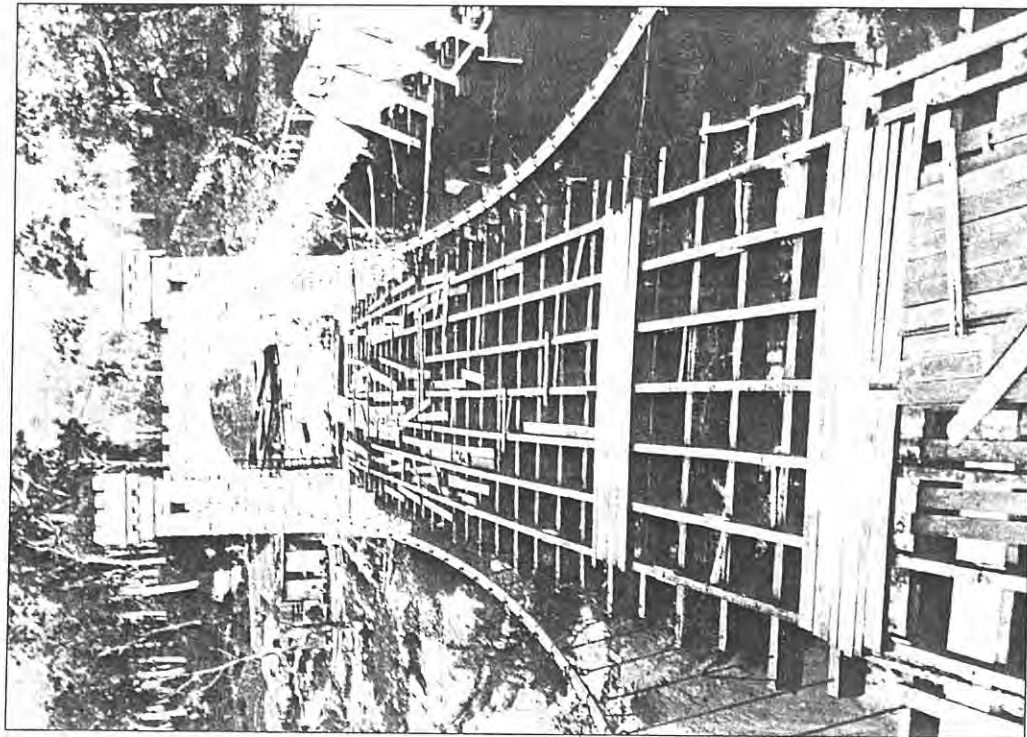
Thursday, 3 September 1896 saw the laying of the second keystone by Barrangarry businessman, Israel Karnofsky, before a large crowd of onlookers. This stone was said to weigh about two tons, and it was lifted by a crane into position. Karnofsky climbed to the top of the arch, and watched by other dignitaries in lofty vantage points, superintended the stone's lowering.

After the question was answered that it was well and truly laid, three hearty cheers were given. *The Times* recorded that the stone was "one of 15 comprising the arch, each stone being of the same size, shape, and weight, the whole forming an arco elliptico of 22ft. span and 6ft. rise".

At the invitation of Karnofsky, some 30 of those men employed on the construction assembled at a local hotel to mark the occasion. Mr Walker was in the chair, and after a meal had been enjoyed, toasts were drunk to the entertainer and the contractor.



While the masonry appears to be complete in this shot, work was still proceeding on the bridge itself.



The bridge in the early stages of construction, with the older one to the right of the picture.

A suitably inscribed mallet was presented to Karnofsky as a memento of the occasion, and harmony and recitations completed a pleasant evening.

The local newspaper continued to keep residents informed on the progress being achieved, while explaining the mechanisms, as follows:

The state of progress of the bridge work may be summed up by saying that the abutment on the Valley side of the river is now complete. The parapets on the same side have also been built to the anchorage chambers, where the bedstones have been set in the concrete blocks forming the thrust blocks.

The blocks take all the thrust of the cables, and therefore carry all the weight of the bridge. The anchorage chambers down which the cables pass to the girders to which they are to be attached, have been excavated to their specified depth of 25ft. on the Valley side, the excavations having been carried on through solid sandstone of a very hard and close texture, thereby rendering the process a very tedious one.

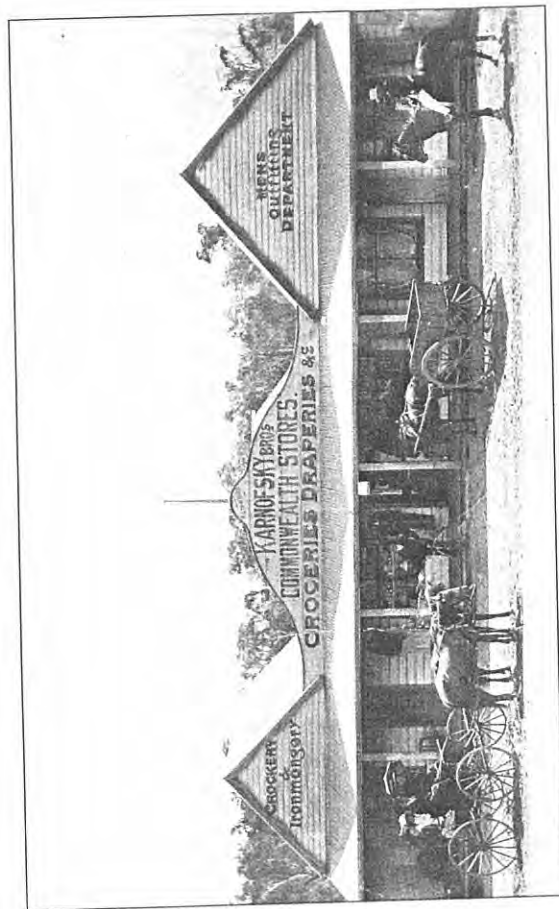
On the Barrengarry side of the river about three-quarters of the masonry in the abutment has been placed in position, the arch already described connecting the two towers of the same. The anchorage chambers on this side are also under weigh, that on the up-stream side being down to a depth of 10ft., that on the down stream to a depth of 6ft.

The thrust block seats have also been excavated in both up and down stream sides, and are calculated to offer as good a resistance to the tensile force on the cables as in that of those on the Valley side.

The concrete will be placed in these seats in a few weeks hence, and, judging by their size, a few casks of cement will be required for that purpose.

The bedstones in the towers on Barrengarry side, which take the vertical thrust of the cables is composed of hard trachyte from the Bowral quarries, will arrive from that place in a few days' time, and will be placed in position. Each stone weighs three tons, while the stones taking thrust at anchorage chambers weigh 5½ tons.

It was estimated that the masonry work would be completed within three months, when the important next phase of erecting and adjusting the wire cables could begin. This was borne out when three weeks later (23 September), it was stated that several of the masons and quarrymen had left the site, and a further five workmen had been "retired" by the end of the month. The cables were ready to be put into place, but it was discovered they were not up to standard and were subsequently condemned.



The Karnofsky Bros. store at Barrengarry.

Israel Karnofsky . . .

The second keystone of the bridge was laid by Israel Karnofsky, a Lithuanian-born businessman who had lived in Kangaroo Valley for less than a decade.

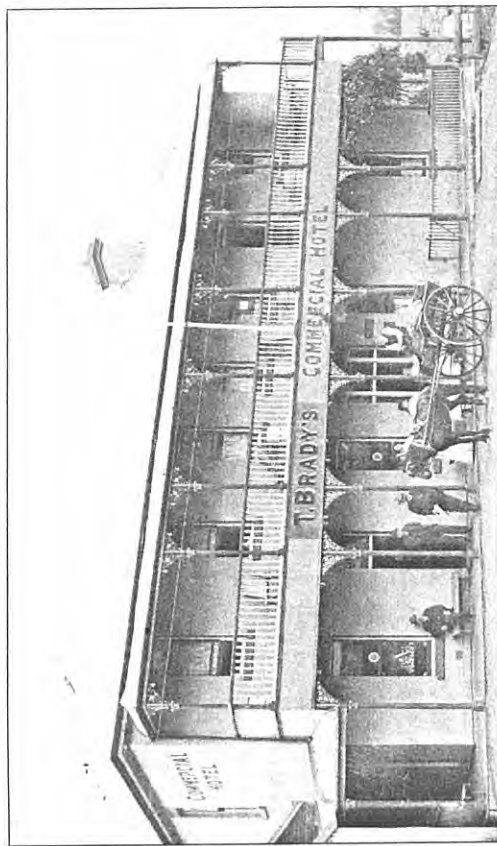
As a 24-year-old, he migrated to Australia in 1881 and spent the first seven years as an itinerant salesman. While some trips took him to the outback, Karnofsky also found his way to Kangaroo Valley where he learned that a store in nearby Barrengarry was for sale.

He sent home to Lithuania, the fare for his brother Myer to join him, and in 1888 they established Karnofsky Bros. Store which offered a wide range of goods for the locals.

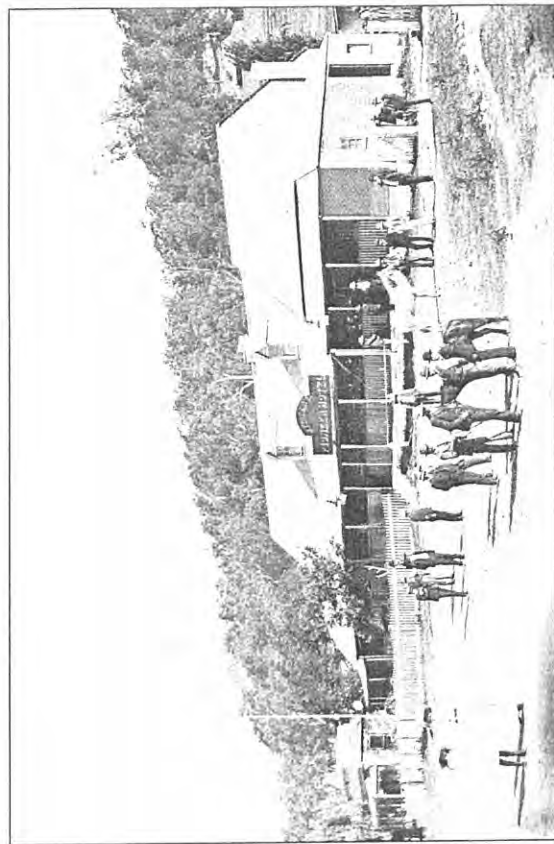
Beneath the store was the township's explosives store built of concrete, which even survived the fire that destroyed the building in 1916.

However one may speculate on whether that fire took the inscribed mallet, presented to Israel Karnofsky when he laid the keystone.

Neither of the Karnofsky brothers married, and they died within six months of each other in 1933.



The two hotels which were frequented by the workers during the construction of the bridge: the Commercial (above) and the Pioneer (below) as they were depicted by Ruston on postcards of a little later period.



4. Tragedy for two workers

A small item in *The Shoalhaven Telegraph* on 25 November 1896 revealed that the project had been held up while the new cables came from London, and it would be into the new year before that work could resume. However this gave the contractors time to get timber onto the site, and this led to the first tragedy relating to the project.

Earlier in that month, Thomas Loveridge had been speaking to his sawyers, urging them to keep up the supply of timber to be used in the bridge construction, to which John Garbutt replied that he was going into the bush the following Sunday, and "if he lived", Loveridge would have all the timber he wanted.

Part of a group of five men, Garbutt with William McNeilly and William Tully were cutting timber at nearby Grassy Mountain, in an area known as Meryla Gullies. Before dispatching the timber, they trimmed it to the required widths and lengths. They had several sawpits there, and Garbutt was in charge of the operation when he met his death on 13 November.

An ironbark log, some 16 feet along, three feet thick and weighing about 36-cwt, was resting on the cross beams, after one side had been sawn. McNeilly and Tully were in the act of turning the log, when one of the beams skidded and it fell on top of Garbutt who took the full force of it and was killed instantly. Coroner Zaccheus G. Bice subsequently visited the location and returned a finding of accidental death.

Garbutt (aged 42) had been born at Egton, Yorkshire, and migrated with his family in 1875, while still a teenager. He entered the timber industry at Moruya where he met his wife, Mary, but was living at Wingello at the time of his death. He was survived by his widow and five daughters, while Mary was seven months pregnant with a son who was to be named after his father.

It was a long wait for the cables which were given extensive testing before being released by the London manufacturers. They were tested to carry between 80 and 90 tons without failure or fracture of the strands, each being made with 49 plough steel wires of special quality. The girders to which the cables were to be fastened in the bottom of the anchor chambers were in Nowra by early in March of 1897, to be carted by Robert Cason. Almost two months later it was predicted that the bridge would soon be a scene of great activity, for "the new ropes have been loaded and some ten out of 28 sent along".

After very little activity in the first half of 1897, the first of the cables was drawn across on 2 July, to be adjusted to its proper position. This was seen as another important milestone, and the cable

was sprinkled with some of the "Pioneer" special brew and blend (presumably from Kangaroo Valley's Pioneer Hotel). The cables had been supplied on wooden reels which were placed in a frame, to facilitate unrolling. The procedure was described by *The Times*:

From the reels, which are situated on the Moss Vale side of the river, the wire cables are drawn by a manilla rope passed across the river to a winch on the Nowra side, and passed down the vertical anchor chamber shafts to the links and bolts which secure them to the anchorage girders dovetailed into the recess at the bottom of the shaft.

The ropes are then adjusted to the correct dip, which is between 19 and 20ft. when the bridge is complete, but at the present moment it is somewhat less owing to the fact that the sag will be increased by the application of the dead load due to elongation of the rope under the imposed stress.

The ropes are also calculated to the above dip at a certain temperature, the thermometric readings having to be taken into account at the rope setting. The Moss Vale end of the cables are then passed down into that chamber, measured out into proper length, and fixed to the anchorage bolts.

The 28 cables are distributed in four nests of seven in each, two nests on each side of the bridge; each nest is arranged in the shape of a hexagon with a cable in centre forming a core.

Each pair of nests are securely fixed permanently in position by clips, to which also attached the suspension bolts which virtually carry the superstructure of the bridge; there are about 40 of these clips and bolts distributed throughout the entire length of 252 feet of the bridge.

The tunnels which drain the anchor chamber are now well advanced. On Nowra side the main drive of nearly 100ft. has been completed a fortnight; the miners are now engaged in the crosscut between the two shafts, which tunnel will also be completed this week.

On the Moss Vale side of river, the main drive of about 60ft. in length has been finished, and the crosscut between the two chambers will be completed in a couple of days hence, so the explosive blasts with which the Valley inhabitants have been familiar for the last four months will soon be an event of the past, and a satisfaction to people living in the immediate vicinity.

To show that these tunnels were absolutely necessary to drain off the water that percolates through the joints, we might state that we observed the shafts were completely full of water after the recent heavy rains.

A couple of passing pedestrians, happening to be on the old bridge at the time of breaking through with the tunnel into the flooded chamber, were amazed at the sudden appearance of a mill race running out of the mouth of the tunnel.

By that time, most of the ironwork and timber decking had been carted from Nowra by Robert Cason, and the ironbark scantlings cut at Jack's Corner had also arrived. The next report on 7 August indicated that 20 of the 28 cables were in place, but adjusting and fixing them was proving to be a slow process. Tunnels to drain the water away had been completed, and residents walking through on dry days compared them to the catacombs of Egypt. There was a further delay while stronger and larger bolts and links were made and fitted, when *The Times* correspondent likened the appearance to "the mizzen rigging of a large four-masted merchantman, the ropes being so closely packed and securely held by deadeyes".

There was a second fatality associated with the construction on 22 October 1897, when Oscar George Bennett (38) fell some 60 feet to his death. Employed as a labourer on the bridge, he was standing on a plank, untying a lever used for twitching the girders, when he lost his footing. Coroner Bice recorded a finding of accidental death. Bennett, whose remains were buried in the Kangaroo Valley Cemetery, was survived by a widow and two small children.

During a spell of hot, dry weather, adventurous locals found that the chambers were completely dry, and they were the coolest spot in town. Meanwhile, up above, a tower had been erected at the end of the parapet walls on the Nowra side, making a very neat finish to the masonry. New girders had been hung to the cables, and they then had stringers laid and fixed to them.

At that stage there was plenty of movement on the decking, even when a plank was thrown onto it, but this was being held firm by the lattice girders of ironbark which were to run the complete length of the bridge and painted white. They were to be seven feet in depth, and were to be attached to the existing girders.

Man who designed the bridge . . .

Ernest Macartney De Burgh (1863-1929), the engineer in charge of bridges, designed and supervised construction of the Hampden Bridge.

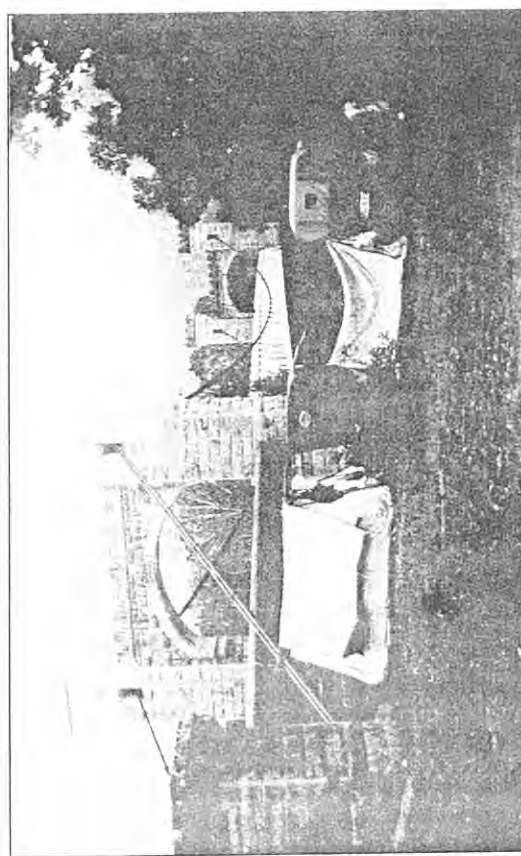
Born in Ireland, he had attended the Royal College of Science and had some experience in railway construction before he migrated to Sydney in 1885.

He immediately joined the New South Wales Public Works Department; within two years he was sent to the country to oversee the construction of steel bridges, and eventually became the engineer in charge of bridges.

His name was given to a style of composite steel and timber truss in use between 1899 and 1904, a good example being the Lansdowne Bridge over the Mulwaree Ponds near Goulburn.



Those materials for the bridge from the Highlands had to be carted over Barrengarry Mountain, with its steep inclines and hairpin bends.



The construction workers camped beside the bridge while they built it, and the tradition has continued over the years.

5. Bridge open at last

Wednesday, 2 February 1898 was a red letter day in the history of Kangaroo Valley when the newly completed Hampden Bridge was opened to vehicular traffic. Accompanied by his wife, John King, JP drove a buggy drawn by a pair of horses to the centre of the bridge where he paused to declare it open to traffic, to the cheers of those assembled.

King, who lived on a local property called "Noggarah", was given the honour because he had been involved in getting the first bridge back in 1879, and was the first to traverse it, as well. After crossing the bridge to the Nowra approach, a blue and pink ribbon was fastened to the necks of each of the horses by the oldest lady resident of Barrangarry.

The Kings were presented with a sketch of the bridge, to one 384th of full size, made by the engineer for the occasion, and they then drove on to Nowra to relate first-hand that the new bridge had been opened. On his return later in the day, he spoke well of "the bridge that carried him over", after refreshments had been taken and toasts honoured at the Nowra approach. Among those present for the occasion were contractor Loveridge and engineer Rorison, along with Messrs List, Harder, Smith and Randall.

Although the stiffening trusses had been erected and the approaches completed, there were still a few minor tasks to be attended to on the bridge, including the painting, and these were expected to be completed within three weeks. Those at the opening took a close look at the mouth of the Nowra drainage tunnel, suggesting it could be used as a lock-up for larrikins and drunks.

A start was made on the demolition of the old timber truss bridge, but then nature took a hand. Just 10 days after the Hampden Bridge was opened to traffic, the rain started to fall in great quantities, and Kangaroo Valley was struck by its worst flood in 28 years. In all, some 20 inches of rain fell, and at its height, the flood carried the old bridge away.

Although demolition work had started, only some of the top timber had been removed and so the structure was scarcely weakened. As soon as it started on its wild journey downstream, the bridge started to break up, and sections were found on many properties, including those of John King, T. Waters and Roulstone. It was suggested the Works Department may have lost £200 worth of materials through the flood, but some of the timber was found to be rotten and the department had been saved the trouble of dismantling.

For some time, about 50 men were engaged in repairing district roads, and tidying up took place in the area near the bridge which had been used for two years as a camping ground for the workmen. (History would repeat itself when this site was again set

aside for camping.) The scene was something like back to normal by the time the Hampden Bridge was officially opened on Thursday, 19 May 1898.

The opening was performed by the Minister for Works, James Henry Young, MP, who had been involved in public works virtually since his election to parliament in 1890, and he served in the ministries of both Sir Henry Parkes and Sir George Reid. Having earlier worked as a harbour pilot at Port Macquarie, he initiated large scale projects at the mouths of various rivers, but his scheme to develop Port Kembla Harbour was more notable.

He was accompanied to the opening ceremony by Robert R. P. Hickson, Engineer-in-Chief, and his assistant, bridge designer Ernest De Burgh. The Irish-born Hickson was a most experienced engineer, having been with the Public Works Department since 1881, and he became Under Secretary in 1896. He was credited with having significantly improved bridge design in this State.

At the suggestion of Hickson, the bridge had been named after Lord Hampden, the Governor of New South Wales between 1895 and 1899. When the matter was put to him, the Governor reportedly wrote that he had visited the Valley on three occasions, and was "delighted with the district".

One of those occasions was in February 1896, as he travelled to Berry where he was to open the annual agricultural show. On the way he had lunched at the Valley's Commercial Hotel, and had a little time to look around. He would have endeared himself to the locals when he said during his speech at the show, that he had never seen "a more beautiful patch of country than that between Kangaroo Valley and Coolangatta".

In his book, *A History of Kangaroo Valley*, John Griffith reveals that Lord Hampden's real name was Henry Robert Bland, but when he was made a Lord in 1892, he adopted the surname "Hampden" because he was descended from John Hampden, a prominent English parliamentarian of the 17th century.

For the opening, the official party had travelled by train the previous day to Moss Vale, to be met at the foot of Barrangarry Mountain by Alex Campbell, MP, and a large group of residents and visitors. On arrival at the bridge which had been decorated with flags, Mr Young was welcomed by Mr T. Bennett, secretary of the reception committee.

Before a crowd of 400 people, the Minister expressed pleasure at being asked to perform the opening ceremony, and to name the bridge, "Hampden". After reading a report on the technical details of the bridge, he said that he "might go over the great Australian continent, and would find nothing equal to it". Total cost of the construction had been £8,382.

Following the ceremony, the Minister and his party were entertained in the National Hall, which had been decorated with ferns. (That hall was near the river, on a site behind the current tennis courts.) Some 86 people sat down to the banquet, when Thomas Nelson was the chairman, and he called on Mr T. Brookes to propose a toast to "The Ministry and Parliament". The response by Mr Young was acknowledged with cheers, and with an election approaching, he took the opportunity to speak of the Government's attributes.

The Hampden Bridge construction was noted by *The Sydney Morning Herald* which pointed out that it was the first bridge of this suspension type to be built in the colony by the Public Works Department.

6. Snippets from the 20th century

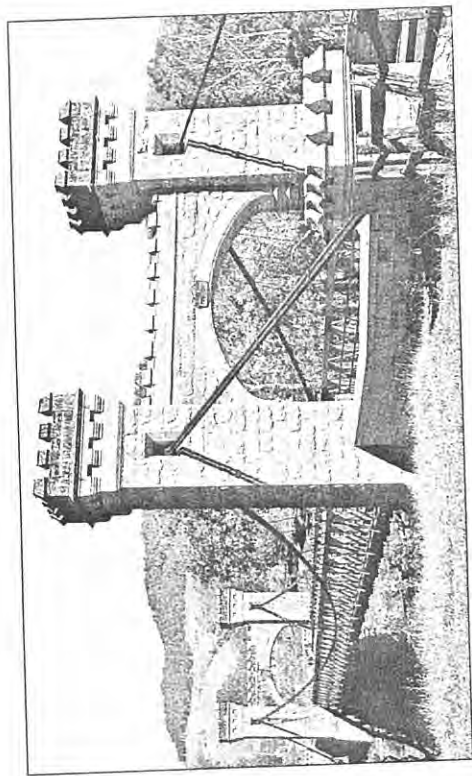
Throughout the 20th century, the Hampden Bridge has been a focal point for Kangaroo Valley, with many developments either coming near to it or trying to make use of its attractiveness to visitors. The Hampden Bridge Reserve, on the south-east side, was in 1957 brought under the control of Shoalhaven Shire Council, for development as a tourist spot.

In 1966, the Kangaroo Valley Progress, Tourist and Ratepayers' Association urged the Department of Main Roads to paint the bridge in its original colours of white woodwork and black ironwork, and this was agreed to. Secretary, Jim Allan of Barrengarry pointed out that it had been painted dark grey during World War II, and his association thought it should be brightened up.

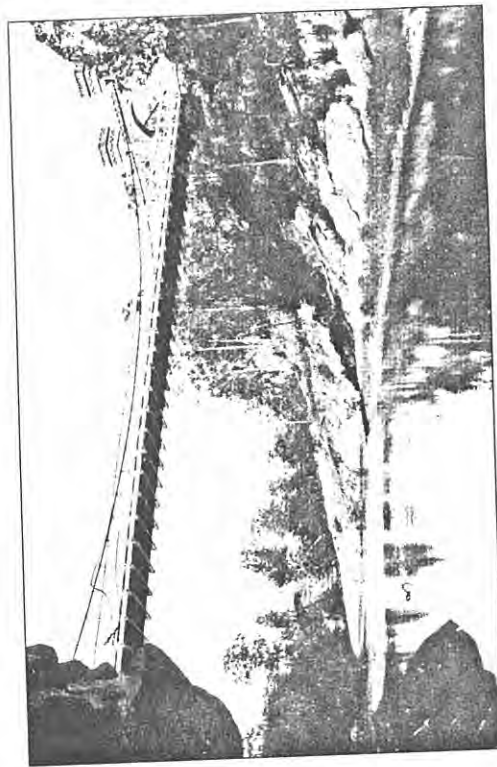
Worried about the bridge's capacity to take heavy loads, the department imposed a 20-ton load limit on it in 1968, but Constable Kel Fleming was unable to take action, because the nearest weigh bridge was at Nowra. However this limit was generally observed, with timber trucks using a nearby ford. During that year, the bridge had been redecked in a program which required it to be closed for short periods.

Hampden Bridge was an attractive backdrop to an important development which gained momentum in 1966, when the Minister for Lands gave Kangaroo Valley Historical Society approval to set up an historic park and museum on land at the north-western end of the bridge. It was opened in January 1969, and continues to be a major attraction at the Valley. This was closely followed by the development of Apex Park, across the road from the museum, which was the first project of the newly formed Kangaroo Valley Apex Club.

In January 1973 it was decided to replace a missing corner stone on the bridge. K. R. Condon of Bundanoon Quarries was the



The magnificent Hampden Bridge, from two different perspectives.



replacement stone.

Kangaroo Valley Historical Society expressed concern in 1979 about damage being done by heavy vehicles when they crossed the bridge. Secretary Garry Bruem said that when members sat in the Museum Park Office they could feel the vibrations, and he requested an on-site meeting with DMR engineers. One idea floated at the meeting was that in time a new bridge may be built, leaving Hampden Bridge for foot traffic.

Longitudinal deck sheeting was replaced in 1982 at a cost of \$48,667; and while the bridge was celebrating its 90th anniversary, it was named by the DMR and the NRMA on a list of the State's 50 most historic bridges. A Bicentennial plaque was affixed to the bridge, with the wording, "This 77m long suspension bridge was designed by E. M. De Burgh, Assistant Engineer for Bridges, NSW Department of Public Works, and built by Loveridge and Hudson of Bowral, using local sandstone. It was officially opened on May 19, 1898 by Hon. J. H. Young, MLA, Minister for Works and named after the Governor, Lord Hampden."

A report by consulting engineers, Law Matheson Ytrup Pty. Ltd. in 1990 identified several problems with the bridge. One major job was to replace 11 bridge girders, and while this work was undertaken in 1991, the load limit was reduced from 30 tonnes to 15.

However it continues to be the pride and joy of Kangaroo Valley, much admired by the large numbers of travellers and tourists who cross it.

ACKNOWLEDGEMENTS: Shoalhaven City Library and newspaper files, notably Shoalhaven Telegraph (some articles of which were reprinted from the Kangaroo Valley Times) 21/8/1879, 4/4/1896, 6/6/1896, 18/7/1896, 5/9/1896, 9/9/1896, 21/11/1896, 10/11/1897, 7/8/1897, 27/10/1897, 20/11/1897, 9/2/1898, 19/2/1898, 26/2/1898, 16/3/1898 (reprinted from Sydney Morning Herald), 25/5/1898; "Foundation Stones — The Contributions of the Loveridge, Ritchie, Hudson and Hoskins Families to Australian Industry" (by Donald G. Hoskins, 1997); "Spanning Two Centuries — Historic Bridges of Australia" (by Colin O'Connor, University of Queensland, 1985); "The Australian Encyclopedia" Vol. 3 (Grodier, Sydney, 1963); "Australian Dictionary of Biography" Vols. 4 and 6: 1851-1890; "Kangaroo Valley, New South Wales" (by William A. Bayley, Kangaroo Valley Historical Committee, 1953); "Shoalhaven" (by William A. Bayley, Shoalhaven Shire Council, 1975); "A History of Kangaroo Valley, Australia" (by John Griffith, Kangaroo Valley Historical Society, 1978); Berrima and District Historical Society, letter from Adelaide Comer, dated 21/9/1966; Neville Potter, Wannassa, ACT; Keith Garbutt, Woollamia; Ian Harris, Jaspers Brush; Australian Jewish Historical Society, article "The Jews of Kangaroo Valley" by Louise Rosenberg, published in June 1989 Newsletter; Roads & Traffic Authority, Bomaderry office.

All photographs are from Kangaroo Valley Historical Society Inc., with the exception of the Commercial Hotel, and Barrangarry Mountain which are from Alan Clark's personal collection, and the two views on page 22, which are from the Nowra Museum.

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